

Amendments to the Claims

1. (Currently Amended) A method of differential quantization in video coding of a coded video bit stream, comprising:

analyzing motion vectors of macroblocks for a frame of a video sequence to determine whether global motion of the video at the frame in the video sequence is characteristic of panning or zooming;

classifying regions of the frame according to perceptual significance based on the global motion determination;

differentially quantizing the regions according to their perceptual significance classification in coding a compressed bit stream of the video sequence;

signaling different quantization of the regions in the compressed bit stream, wherein the signaled different quantization includes signaling different quantization strength for macroblocks in a region on at least one boundary edge of the frame, and wherein the signaling uses a syntax that includes coding a choice of the region from among the boundary edges of the frame;

reading the signaled different quantization from the compressed bit stream; and

dequantizing the macroblocks of the frame according to the signaled different quantization.

2. (Original) The method of claim 1 wherein the signaling different quantization uses a syntax that includes coding a frame level quantization strength and an alternative quantization strength coded as a difference from the frame level quantization strength.

3. (Original) The method of claim 1 wherein the signaling different quantization uses a syntax that includes coding the region to be any of left, right, top, or bottom boundary edges.

4. (Original) The method of claim 1 wherein the signaling different quantization uses a syntax that includes coding the region to be any of adjacent pairs of left, right, top, and bottom boundary edges.

5. (Original) The method of claim 1 wherein the signaling different quantization uses a syntax that includes coding the region to be any of a single boundary edge, and a pair of adjacent boundary edges.

6. (Currently Amended) The method of claim 1 wherein the signaling different quantization uses a syntax that includes coding a choice of the region to be from among any of a single boundary edge, a pair of adjacent boundary edges, and all four boundary edges.

7. (Currently Amended) The method of claim 1 wherein the signaling different quantization uses a syntax that includes coding a choice of the region to be from among any of a single boundary edge, a pair of adjacent boundary edges, all four boundary edges, and all macroblocks individually.

8. (Previously Presented) A video decoder comprising:
an inverse quantizer for dequantizing coded macroblocks of a frame in a video sequence encoded in a compressed video bit stream;
a side information decoder for reading side information encoded apart from compressed video content in the compressed video bit stream according to a syntax scheme, wherein the syntax scheme identifies a differently quantized region to be from among a list of coding possibilities that comprises a single boundary edge and a pair of adjacent boundary edges of the frame; and

a dequantization controller for controlling a quantization strength applied by the inverse quantizer in dequantizing individual macroblocks of the frame in accordance with the decoded side information of differential quantization of the respective macroblocks.

9. (Previously Presented) The video decoder of claim 8 wherein the syntax scheme identifies regions classified as having less visual significance due to a global motion analysis being indicative of panning.

10. (Previously Presented) The video decoder of claim 8 wherein the syntax scheme identifies regions classified as having less visual significance due to a global motion analysis being indicative of zooming.

11. (Canceled)

12. (Original) The video decoder of claim 8 wherein the syntax scheme identifies a differently quantized region to be from among a list of coding possibilities that comprises a single boundary edge, a pair of adjacent boundary edges, and all boundary edges of the frame.

13. (Original) The video decoder of claim 8 wherein the syntax scheme identifies a differently quantized region to be from among a list of coding possibilities that comprises a single boundary edge, a pair of adjacent boundary edges, all boundary edges, and all macroblocks separately.

14. (Original) The video decoder of claim 8 wherein the syntax scheme includes a frame level quantization strength and a second quantization strength.

15. (Original) The video decoder of claim 14 wherein the second quantization strength is coded relative to the frame level quantization strength.

16. (Currently Amended) A computer-readable medium having encoded with computer-executable instructions carried thereon for executing on a computer to decode a differential quantization coded video bit stream, the program comprising:

programming instructions for reading differential quantization information signaled in the coded video bit stream according to a syntax scheme, wherein the syntax scheme represents a different quantization strength of at least a region of macroblocks in a frame of video than other macroblocks of the frame, wherein the syntax scheme codes the region from a choice of a single boundary edge and a pair of adjacent boundary edges of the frame; and

programming instructions for dequantizing macroblocks of the frame at the different quantization strengths in accordance with the differential quantization information read from the coded video bit stream.

17. (Previously Presented) The computer-readable medium of claim 16 wherein the syntax scheme includes region identification coding for a variety of regions classifiable as less perceptually significant due to panning and zooming.

18. (Previously Presented) The computer-readable medium of claim 16 wherein the syntax scheme codes the region from a choice of a single boundary edge and a pair of adjacent boundary edges of the frame.

19. (Canceled)

20. (Previously Presented) The computer-readable medium of claim 16 wherein the syntax scheme codes the region from a choice of a single boundary edge, a pair of adjacent boundary edges, all boundary edges, and all macroblocks separately.

21. (Previously Presented) The computer-readable medium of claim 16 wherein the syntax scheme includes a frame level quantization strength and the different quantization strength.

22. (Previously Presented) The computer-readable medium of claim 21 wherein the different quantization strength is coded relative to the frame level quantization strength.

23. (Currently Amended) A method of decoding a coded video bit stream using differential quantization, comprising:

decoding video content of the coded video bit stream;

decoding information from the coded video bit stream which signals differential quantization of the regions in the compressed bit stream using a syntax that includes coding a frame level quantization strength and an alternative quantization strength coded as a difference from the frame level

quantization strength, the syntax further signaling the regions for differential quantization to be a coding choice out of any of a single boundary edge, a pair of adjacent boundary edges, all four boundary edges, and all macroblocks individually;

dequantizing the macroblocks of the frame according to the signaled different quantization.